(No Model.)

4 Sheets—Sheet 1.

H. S. POPP.

MACHINE FOR CASTING TYPE.

No. 510,288. Patented Dec. 5, 1893.

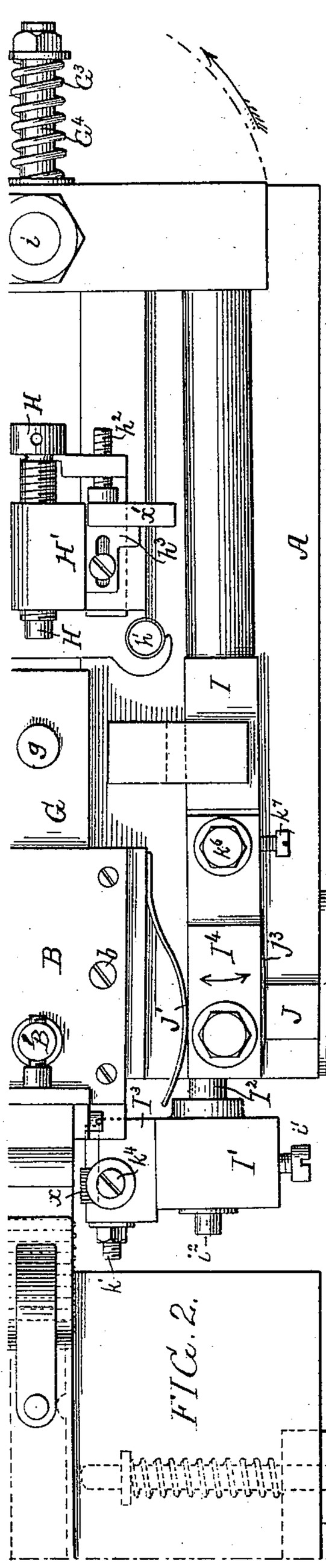

FIG. 2.

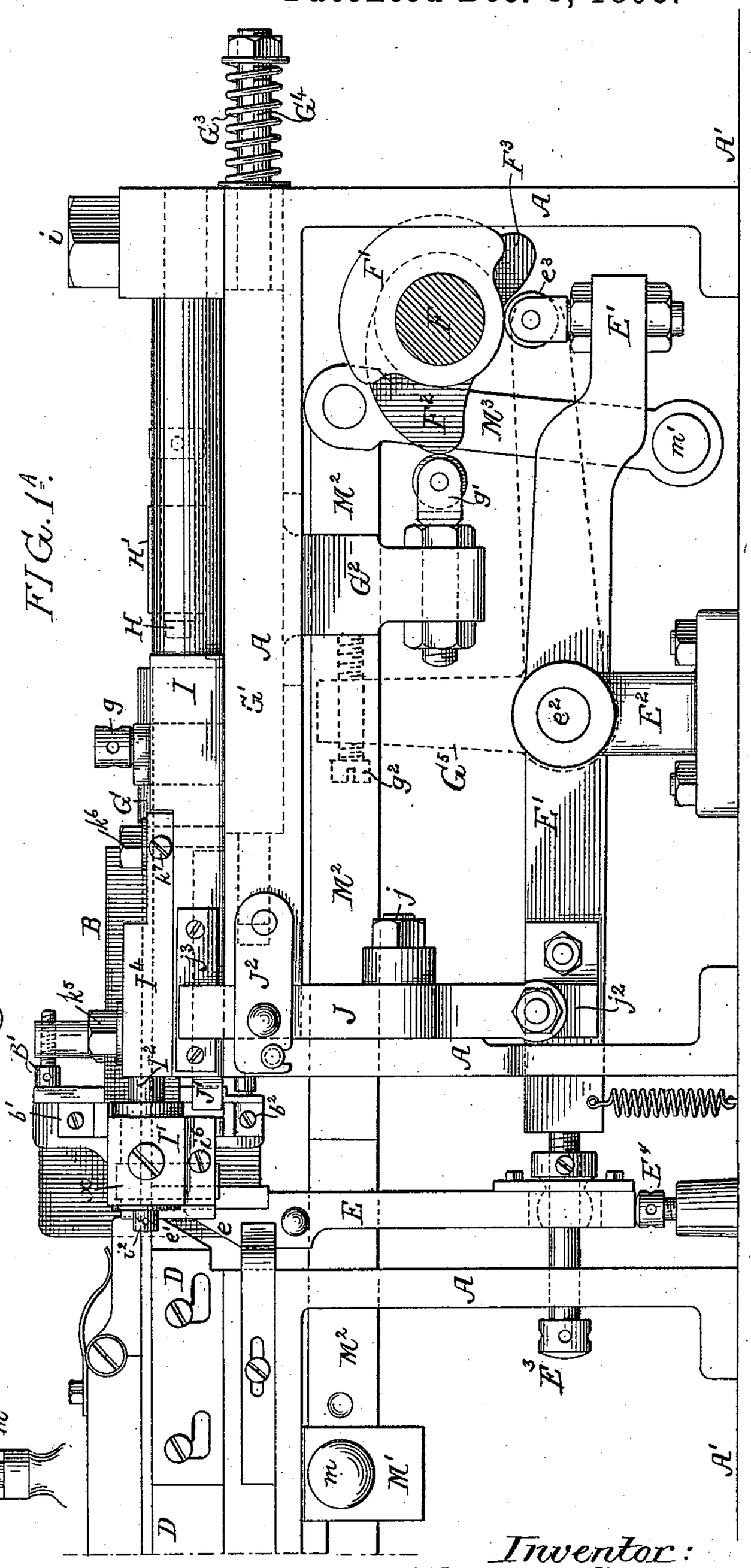

FIG. 1.

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(No Model.) 4 Sheets—Sheet 2.

H. S. POPP.

MACHINE FOR CASTING TYPE.

No. 510,288. Patented Dec. 5, 1893.

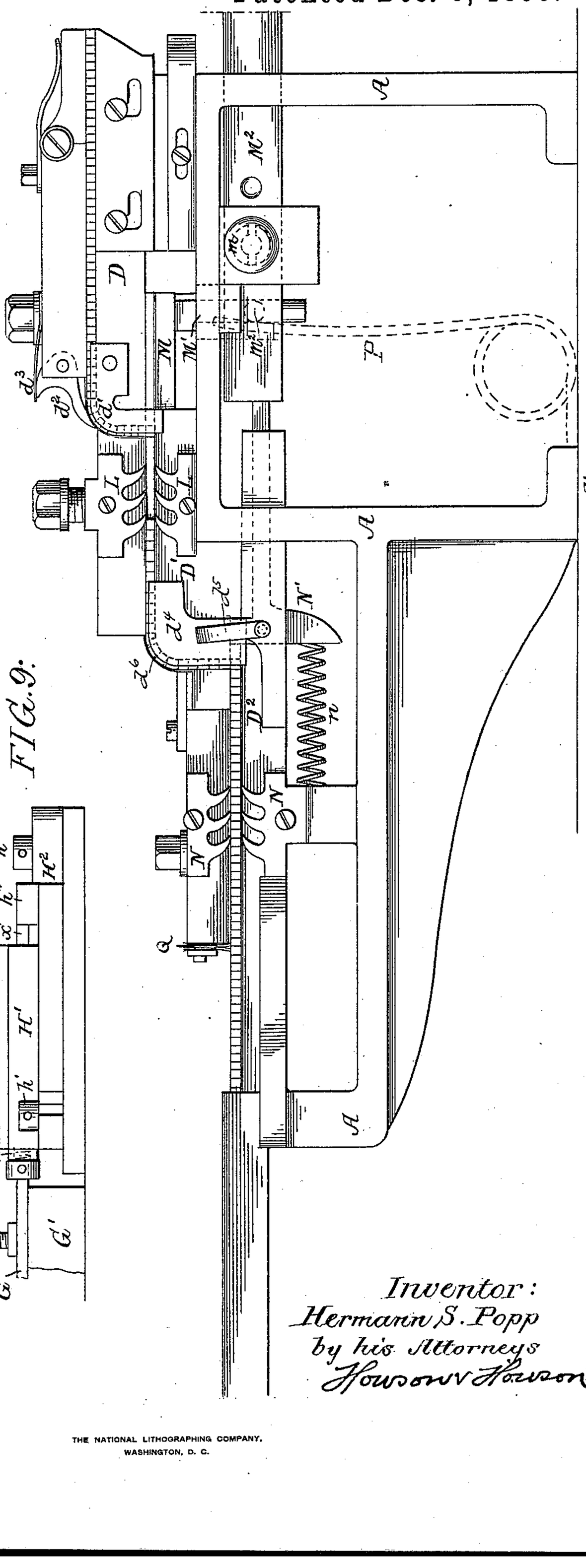

FIG. 1B

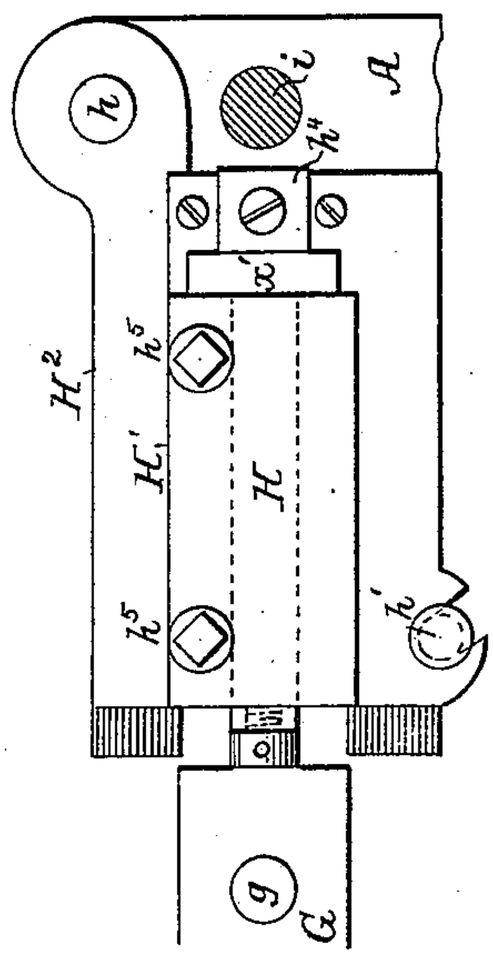

FIG. 8

FIG. 9.

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(No Model.) 4 Sheets—Sheet 3.

H. S. POPP.

MACHINE FOR CASTING TYPE.

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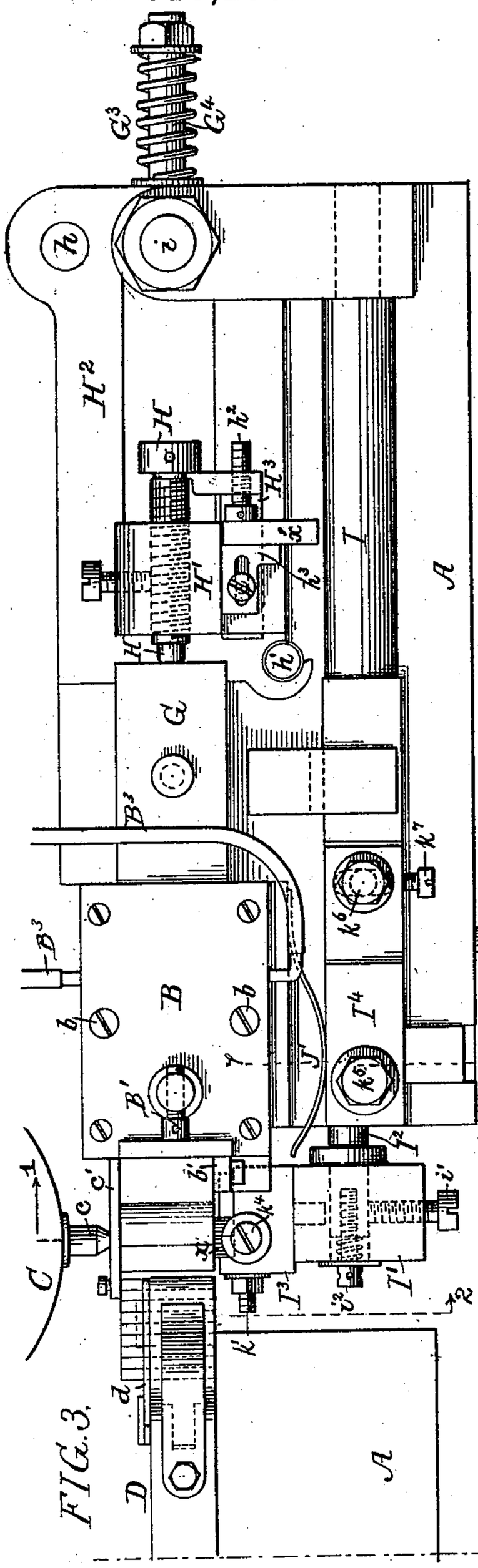

FIG. 3.

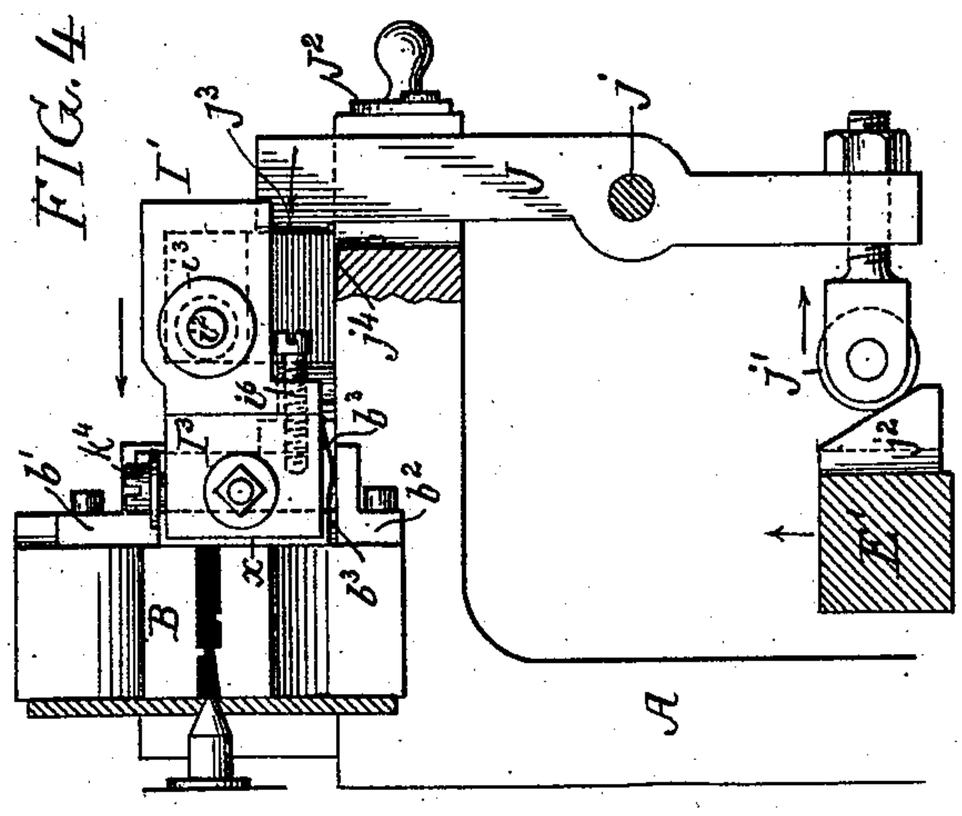

FIG. 4.

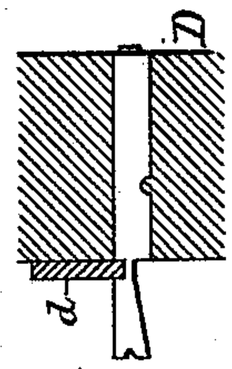

FIG. 6.

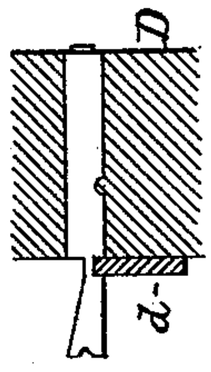

FIG. 7.

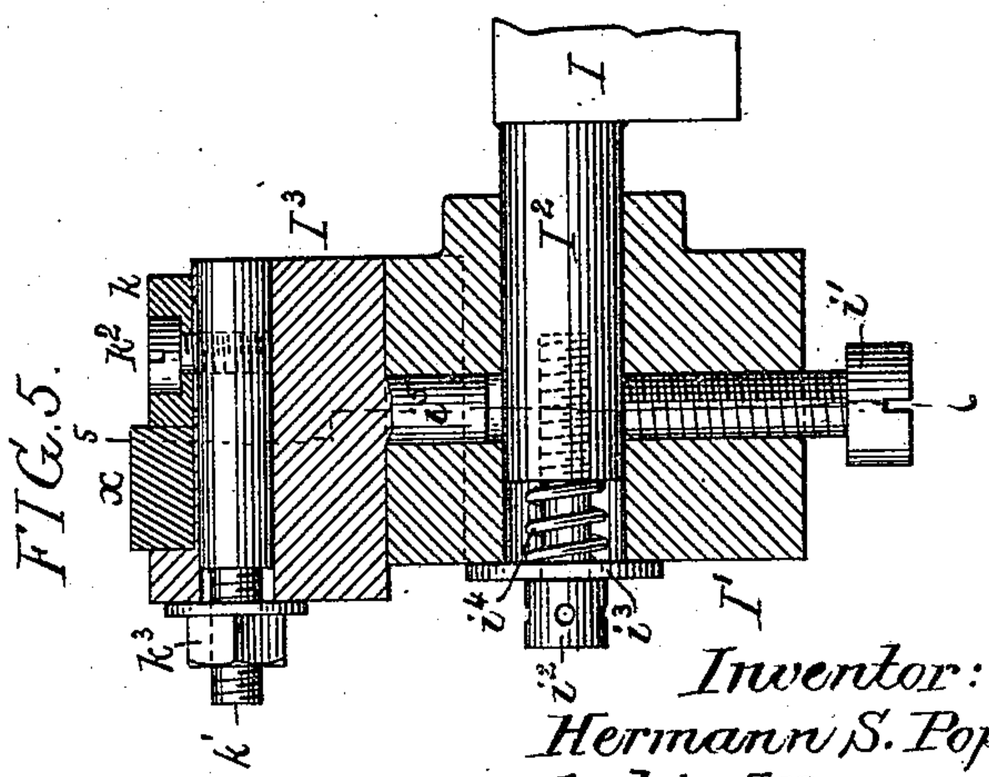

FIG. 5.

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(No Model.) 4 Sheets—Sheet 4.

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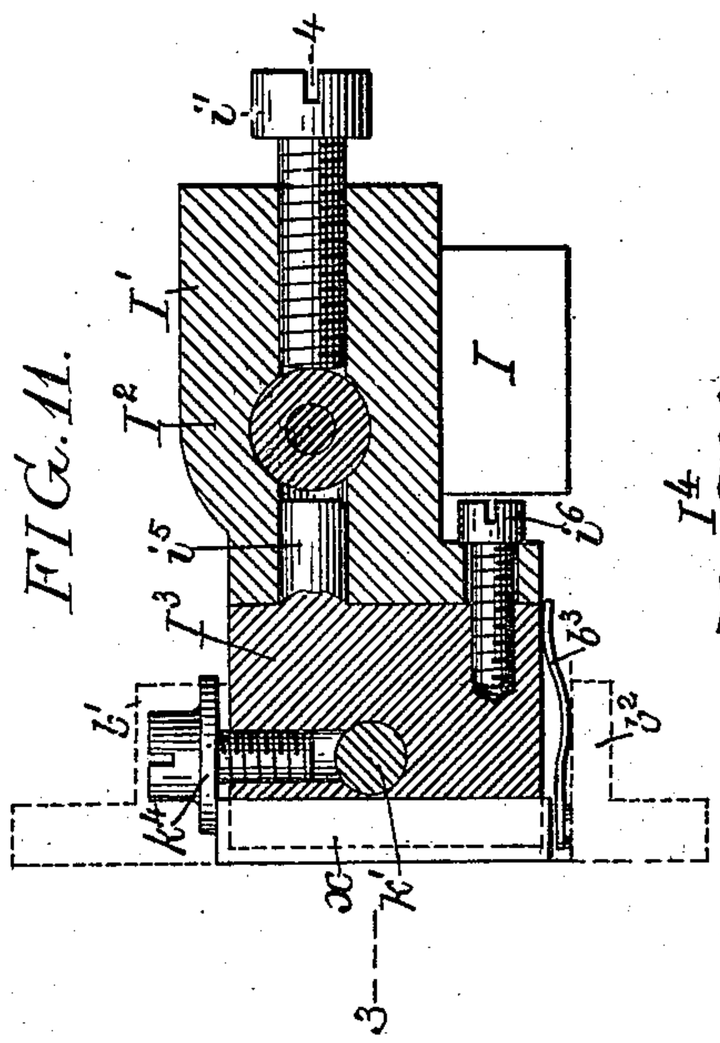

FIG. 11.

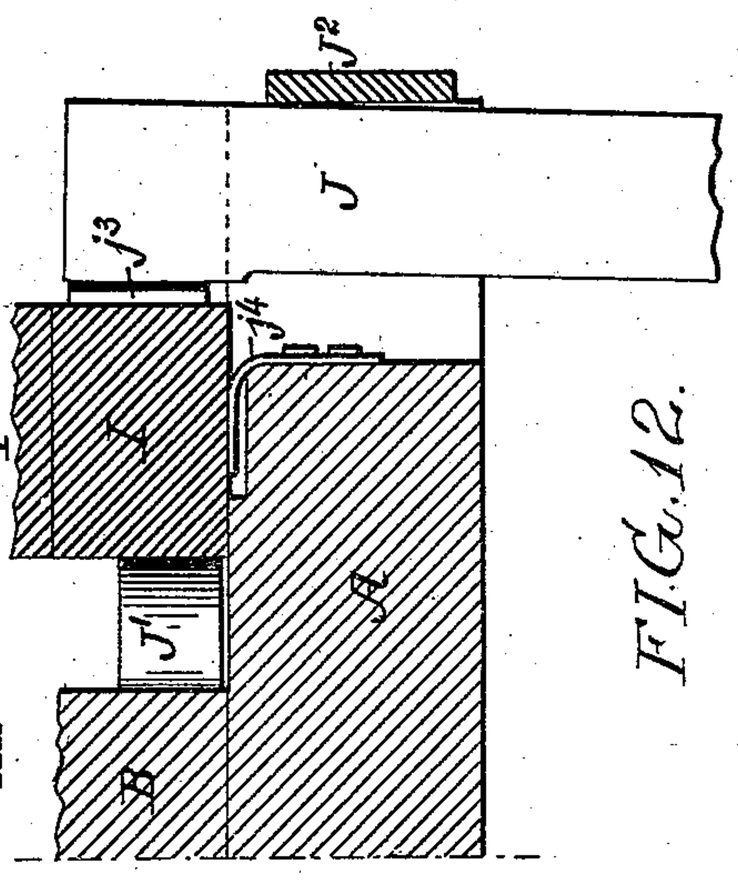

FIG. 12.

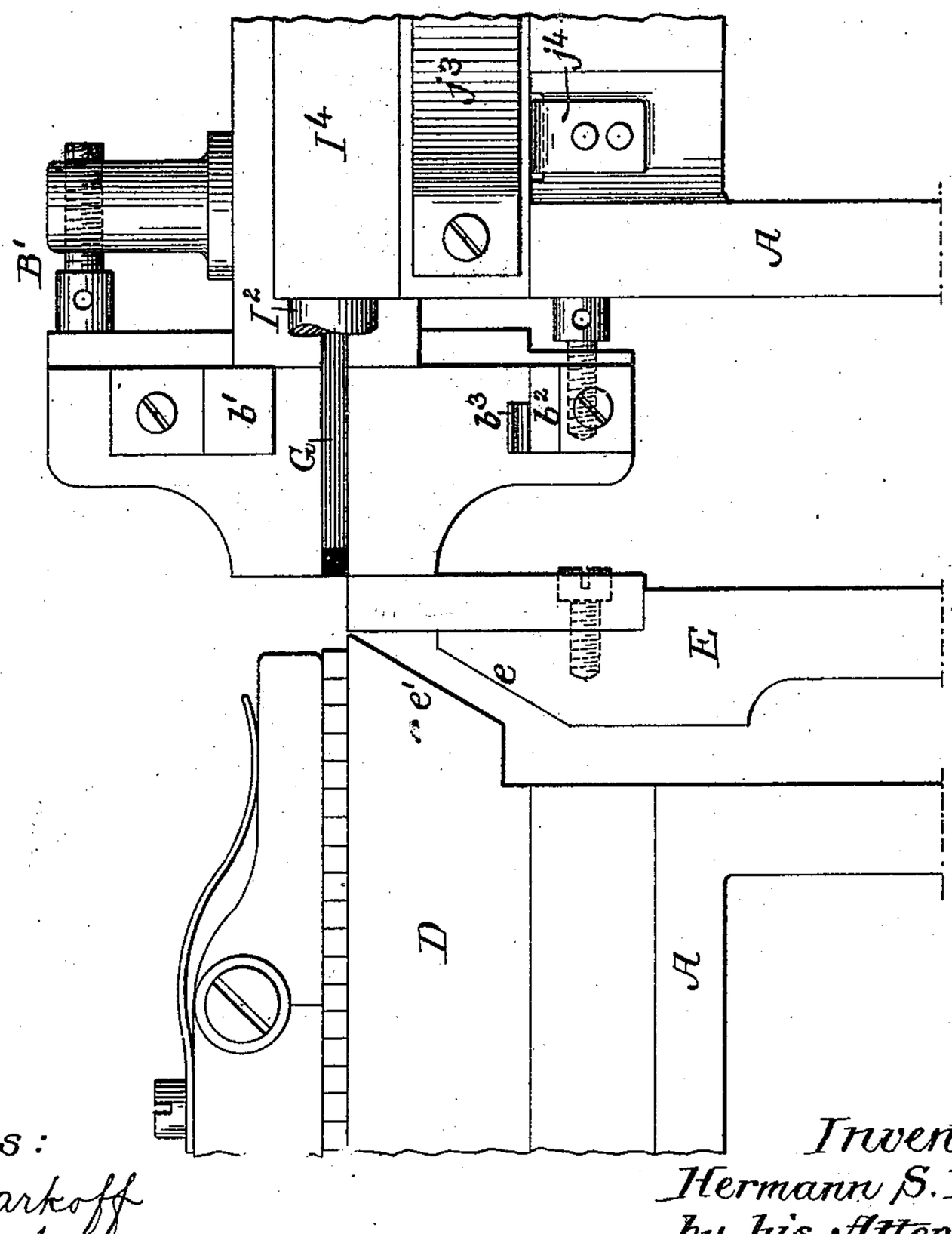

FIG. 10.

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UNITED STATES PATENT OFFICE.

HERMANN S. POPP, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE MACKELLAR, SMITHS & JORDAN COMPANY, OF SAME PLACE.

MACHINE FOR CASTING TYPE.

SPECIFICATION forming part of Letters Patent No. 510,288, dated December 5, 1893.

Application filed March 9, 1891. Serial No. 384,303. (No model.)

To all whom it may concern:

Be it known that I, HERMANN S. POPP, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Type-Casting Machines, of which the following is a specification.

The object of my invention is to construct a type casting machine in which the several parts are simplified and which can be readily adjusted to cast different sized type and to obtain correct alignment, as fully described hereinafter.

In the accompanying drawings:—Figure 1^A, is a side view of a one half of my improved type casting machine showing the casting parts. Fig. 1^B, is a side view of the other half of my improved type casting machine showing the mechanism for rubbing and dressing the type. Fig. 2, is a plan view of the part shown in Fig. 1^A, the matrix being moved away from the mold, the cast type being pressed out of the mold. Fig. 3, is a plan view of the portion shown in Fig. 1^A, showing the matrix in a position against the mold ready for casting. Fig. 4, is a section on the line 1—2 Fig. 3. Fig. 5, is a sectional plan view on the line 3—4, Fig. 11. Figs. 6 and 7, are detailed views. Figs. 8 and 9, are plan and side views of modifications of the adjusting mechanism of the plunger. Fig. 10, is an elevation, partly in section, of a portion of the machine drawn on an enlarged scale. Fig. 11, is a sectional view on the line 5—6, Fig. 5; and Fig. 12, is a sectional view on an enlarged scale on the line 7—8, Fig. 3.

This invention relates to certain improvements in the machine patented by me October 22, 1889, No. 413,550, and in said patent will be found mechanism identical with portions shown in this machine, as, for instance, the vertical sliding side of the mold and the mechanism connected therewith.

Referring in the first instance to Figs. 1^A, 1^B, A is the frame or table mounted on a suitable base A′ this table carrying the mechanism for casting, feeding and rubbing the type.

B is the mold secured to the table A by bolts *b*, and B′ is an adjustable screw for steadying the parts thereof and holding them in proper relation to each other. The melting pot C has a nipple *c* projecting into a cavity in an apron or shield *c′*, said cavity being in line with that portion of the mold in which the type is cast. D is a table on which the cast type are pushed one by one by the reciprocation of the ejector plunger G. The side bar E of the mold has a vertical reciprocating movement and is drawn down after the type has been cast, as clearly shown in my patent above referred to, and this side bar has a beveled edge *e* which strikes against the inclined face *e′* on the table D when it is forced up into a position for forming one side of the mold, the side bar being forced against the mold and forming a tight joint therewith. The top of this bar E is flat and acts as a bridge to carry the type from the mold to the table D, as more clearly shown in Fig. 10, which represents a face view of a part of the machine with the front plate removed and the bar E in its lowest position. The bar E is reciprocated through the medium of a lever E′ pivoted at e^2 to a bracket E^2 on the base of the machine, one arm of the lever E′ being provided with a screw bolt E^3, which carries and forms a slide for a ball fitting within a socket in the bar E, while the other arm of the lever carries a roller e^3 adapted to be acted upon by a cam F′ on the cam shaft F, this cam being so shaped as to reciprocate the bar E at the proper time to close and open the mold. Immediately beneath the bar E is an adjusting screw E^4, which limits the downward movement of the bar.

The mold B is preferably provided with pipes B^3, through which a circulation of water or air is kept up, as illustrated in Fig. 3, and guided in this portion of the mold is an ejector plunger G, which when in its normal position, forms the side of the mold opposite to that formed by the bar E, but when it is forced forward it ejects the type cast from the mold and transfers it onto the table D, said ejector being suitably grooved to accommodate itself to the ribs formed in the mold, Fig. 4. This plunger G is attached to a slide G′ by a binding screw *g*, which passes through a slot in the plunger and enters a screw threaded orifice in the carriage. On the under side of the carriage is an arm G^2 carrying an adjustable bearing block *g′* on which is a roller.

On the cam shaft F is a cam F^2 which acts upon the block g' and forces the carriage and plunger forward. A spring G^3 on a pin G^4 returns the carriage to its normal position, but in order to make the return positive I pivot a bell crank lever G^5 to the pivot pin e^2 and provide the upper arm with a set screw g^2 which rests against the arm G^2. The other arm of the lever is acted upon by the cam F^2. When the cam F^2 strikes the lever G^5 it forces the carriage back to a position hard against the stop H. The stop H is in the present instance in the form of a screw threaded in a block H′ mounted on a plate H^2 pivoted at h and held in place by a screw bolt h'. At one side of the screw H is a slide H^3 adapted to ways in the block H′ and having a projection which engages with the screw head so that the slide will move with the screw. In this slide H^3 is a gage screw h^2 between which and an adjustable gage h^3 is inserted the gage block x' to set the gage of the mold, the screw and gage being adjustable to take up for wear. The gage may be made as shown in Figs. 8 and 9, in which the gage H is a plain bar having a head h^4 between which and the block H′ is placed the gage block x' of the size of the type to be cast. The clamp screws h^5 are used in this instance to hold the gage H in position. The head of the gage is in the form of a set screw so that it can be adjusted when the plunger or the die wears. Pivoted at i is the matrix lever I carrying at its outer end the head I′ on which is mounted the matrix x. This lever has a vibrating movement toward and from the mold.

Pivoted to a stud j on the frame A is a lever J. One end of this lever carries a roller j', Fig. 4, adapted to a beveled lug j^2 on the lever E′. The opposite end of the lever J passes up back of the matrix lever I and as the lever E′ is raised it forces the upper end of the lever J in, which acting upon the matrix lever presses its matrix hard against the mold. I preferably place a spring plate j^3 on the lever I against which the lever J presses. The lever I is forced from the mold by a spring J′ inserted between the mold carrier and the lever. The rearward movement of the lever J is limited by a latch plate J^2 on the table A, which can be moved to one side when it is necessary to move the matrix lever I out away from the die when it is necessary to change the matrix or for repairs.

On the table A is a spring plate j^4, Fig. 12, which tends to lift the matrix lever as it closes the mold so that it will press up hard against the lip b' on the mold to make an accurate fit and I prefer to place a lip b^2 below the head of the matrix lever I so as to prevent it from dropping, a spring b^3 being inserted between the two, aiding the spring j^4 in keeping the matrix head I′ up as shown more clearly in Fig. 11. The matrix head I′ is swiveled to a post I^2 extending from the lever I and a set screw i' binds the head on the post at any position required. A screw i^2 extends into a threaded orifice in the end of the post I^2 and rests against a plate or washer i^3. A spring i^4 is inserted between the washer and the post so that the head I′ can be moved along the post and set by the set screw i'. The matrix carrier I^3 is swiveled to the head I′ by a pin i^5 and can be adjusted to any position and set by a screw i^6, Figs. 4 and 11. The matrix x is clamped to the carrier by a clamp block k carried by a screw bolt k' adapted to an orifice in the carrier, it being secured thereto by a screw k^2. A nut k^3 on the bolt k' rests against the carrier so that on turning the nut this clamp block can be drawn tightly against the matrix and hold it firmly, as clearly shown in Fig. 5. The matrix is adjusted vertically by a screw k^4, the head of which presses against the top of the matrix, the spring b^3 extending under the matrxi carrier I^3 tending to lift it. I preferably mount the post I^2 on a movable plate I^4 pivoted to the lever I by a pin k^5, and secure it also by a set screw k^6 adapted to a slot in the plate. I prefer to use an adjusting screw k^7 so that the operator can accurately adjust the plate. Thus the matrix carried by the head can be adjusted to the mold universally by the above described devices.

As the type is projected from the mold by the plunger G, it is guided by a plate d at the rear of the table D, so that the face is always kept in proper line until the tail of the type is cut off. The plate can be on the upper portion as shown in Fig. 6, or on the lower portion, as shown in Fig. 7. The end d' of the table D is rounded and the type turns as it is fed from the table D, to the table D′. A pivoted arm d^2 presses against the type as they travel around the curve d', a spring d^3 pressing against the arm always keeping the arm against the type, but readily yielding when the passage is choked preventing the breaking of parts of the machine. The type is fed from the curve past the rubbing knives L, three in the present instance on each side of the type way, by a plunger M vertically adjustable in a carriage M′ connected to and operated by a horizontally movable bar M^2; the carriage can be thrown out of gear with the bar by moving a clutch pin m, Fig. 1^B. The bar M^2 is connected at its opposite end to a link M^3 pivoted to the fixed portion of the machine at m'. The link M^3 is acted upon by a cam F^3 on the cam shaft F so that the bar and its plunger will have a reciprocating motion. The length of the throw of the cam is sufficient to carry the type past the three rubbing cutters at once, making a cleaner cut type than heretofore.

At the end of the table D′ is a curved guide formed of opposite side plates d^4 held in place by springs d^5, one on either side of the guide and a curved top plate d^6 being used in place of the spring arm d^2 on the first slide, if desired. In passing over this slide the type is turned and drops onto a table D^2, but the type on this table are preferably fed only the

length of the type past the dressing cutters N. The bar M^2 strikes the plunger N′ when it nears the end of its stroke pushing it forward the necessary distance. The plunger is returned by a spring *n*.

At the back of the machine is a spring P shown by dotted lines in Fig. 1^B, which returns the carriage M′ and bar M^2 to their first position ready to be again pushed forward by the cam F^3.

The plunger M can be readily raised or lowered according to the thickness of type, by unscrewing the set screw m^2, lifting the plunger and binding it in its raised position by the set screw. The set screw extends at the rear of the machine and acts in the present instance, as the bearing for the spring P. At the end of the upper portion of the last guideway is secured a brush Q which serves to clean the type as they pass from the machine.

I claim as my invention—

1. The combination in a type casting machine, of the frame A, the type mold, a matrix for said type mold, with a horizontal matrix-carrying lever guided in said frame, said lever being so pivoted as to swing in a horizontal plane and having its pivot point to the rear of the vertical plane of the matrix face, substantially as specified.

2. The combination in a type casting machine, of the frame A, the type mold, a matrix for said type mold, a horizontal matrix-carrying lever guided in said frame and pivoted thereto, said matrix-carrying lever having its pivot point to the rear of the vertical plane of the matrix face, a vertical lever adapted to act upon said matrix-carrying lever, and mechanism for actuating said vertical lever, substantially as specified.

3. The combination of the type mold, the pivoted matrix lever I, a plate I^4 adjustably secured thereto, a post I^2 thereon, a head I′ pivoted on said post, a screw i^2 for moving the head longitudinally on the post, a set screw i' for locking the head to the post, a matrix, a carrier i^3 therefor, a pin i^5 on which said carrier is pivoted and a set screw i^6 for locking the carrier to the head, substantially as specified.

4. The combination of the table on which the type travels, the series of rubbing cutters, a plunger for moving a series of type past the said series of cutters at one movement, a series of dressing cutters, a plunger for moving the type only a type width past the dressing cutters, and a moving bar arranged to act on both plungers and move them the specified distances, substantially as set forth.

5. The combination of the mold, a plunger therein, a stop to limit the outward movement of the plunger, a block in which is mounted the stop, a gage block adapted to rest between the stop and the block to regulate the opening in the mold, and a screw in said gage block adjustable for wear, substantially as described.

6. The combination of the type mold, mechanism for moving the type from said mold, a table D rounded at its outer end, an arm pivoted so as to rest on the type as they turn on the rounded end, with a spring for said arm, substantially as set forth.

7. The combination of the mold, a plunger therein, a screw stop H to limit the outward movement of the plunger, a block H′ having a screw thread opening to receive the screw H, a slide H^3 engaging with the screw H, a screw h^2 on said slide and an adjustable gage, h^3, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HERMANN S. POPP.

Witnesses:

HENRY HOWSON,

HARRY SMITH.